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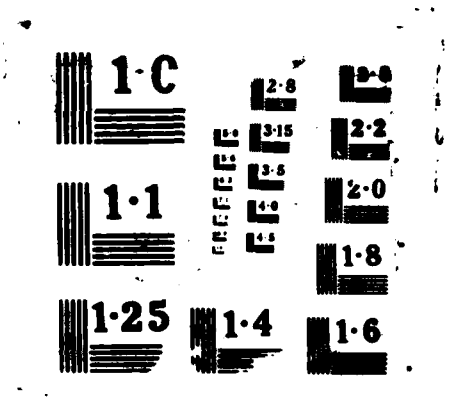
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AN INFORMATION REQUIREMENTS ANALYSIS OF MILITARY AIRLIFT COMMAND (MAC) AERIAL PORT OPERATIONS

THESIS

Victor R. Stack
Captain, USAF

AFIT/GLM/LSY/87S-72

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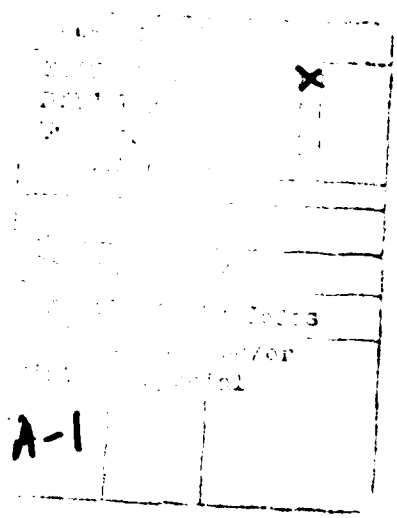

AFIT/GLM/LSY/87S-72

AN INFORMATION REQUIREMENTS ANALYSIS OF MILITARY AIRLIFT COMMAND (MAC) AERIAL PORT OPERATIONS

THESIS

Presented to the Faculty of the School of Systems
and Logistics of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Victor R. Stack, B.A.
Captain, USAF

September 1987

Approved for public release; distribution unlimited

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Table of Contents

		Page
Acknowledgements		ii
Abstract		iv
I.	Introduction	1
	General Issue	1
	Specific Problem	2
	Justification	2
	Scope	2
	Research Objectives	3
II.	Background	5
III.	Methodology	15
	Introduction	15
	Investigative Research	15
IV.	Results and Analysis	19
	Introduction	19
	Research Objectives	19
V.	Recommendations and Conclusion	27
	Introduction	27
	Recommendations	27
	Areas for Further Research	31
	Conclusion	32
Appendix A:	Sample MAC Form 77, Aircraft Ground Handling Record	33
Appendix B:	Sample Information Matrix	35
Appendix C:	Personnel Interviewed	36
Appendix D:	Information Matrix	37
Appendix E:	Abbreviations Used in Information Matrix	57
Appendix F:	Proposed Information Requirements	58
Bibliography		61
Vita		64

Abstract

The Military Airlift Command (MAC) as the Single Manager Operating Agency for the Department of Defense (DOD) Airlift Service provides air transportation for the DOD and other government agencies. MAC maintains a vast network of aerial ports providing a vital link in accomplishing MAC's mission during wartime, periods of crisis, and peacetime. This research focused on operating procedures and existing regulations in order to assess the information requirements necessary to conduct daily operations. Documentation review and telephone interviews were used to facilitate this research. A Critical Success Factors (CSF) methodology was employed and resulted in a proposed new set of information needs for the Air Terminal Operations Center (ATOC). The proposed set greatly reduces the degree to which the ATOC currently documents each airlift mission, without degrading effectiveness. Savings realized by reducing the time expended in documenting needless or redundant information are significant given pending aerial port manpower authorization reductions. ATOC personnel can increase time spent on management and control of aerial port resources.

AN INFORMATION REQUIREMENTS ANALYSIS OF MILITARY AIRLIFT COMMAND (MAC) AERIAL PORT OPERATIONS

I. Introduction

General Issue

The Military Airlift Command (MAC) as the Single Manager Operating Agency for the Department of Defense (DOD) Airlift Service provides air transportation for the DOD and other government agencies. MAC maintains a vast network of aerial ports providing a vital link in accomplishing MAC's mission during wartime, periods of crisis, and peacetime. Included in this network are 22 intertheater ports, 8 Mobile Aerial Ports, and 22 operating locations and detachments worldwide. Seven intertheater ports are in the continental United States and are located at Travis AFB and Norton AFB, California; McChord AFB, Washington; McGuire AFB, New Jersey; Charleston AFB, South Carolina; Dover AFB, Delaware; and Tinker AFB, Oklahoma. MAC aerial ports accept and process cargo and passengers and ensure the continued flow is maintained to support deployed forces worldwide. MAC's worldwide movement averages 28,525 tons of cargo and 80,402 passengers per month (Office of Public Affairs, 1986).

Specific Problem

The fundamental problem is that current airlift documentation procedures are predominantly manual in nature, cumbersome, and labor intensive. Existing information and documentation requirements within the aerial port have not been examined to determine whether they are adequate, excessive, or deficient for monitoring daily operations and providing a data base for higher headquarters reporting.

Justification

Pending aerial port manpower cuts will severely impact MAC's ability to support the deployment/employment and sustainment of combat forces (Lundquist, 1987:I-16). Operating procedures must be studied to determine the most effective and efficient means to accomplish the mission. The bottom line is the aerial ports will have to do more with less manpower available. The research results will aid MAC in determining the extent to which changes in the way aerial ports document MAC airlift missions are necessary.

Scope

This research is limited to examining the MAC intertheater aerial ports located in the continental United States (CONUS). This research will focus on the information requirements within one section of the aerial port, the Air Terminal Operations Center (ATOC). The ATOC was selected because it serves as the central control point for all

aerial port operations and receives information from, and disseminates information to, all other sections within the aerial port. Additionally, the ATOC is a section which is established within every MAC aerial port. Documentation requirements will be studied on MAC missions supporting the DOD and other government agencies. Specifically excluded from this study will be the following type missions when flown in support of operations: Special Assignment Airlift Missions (SAAM), Joint Airborne/Air Transportability Training (JA/ATT), MAC exercise/contingency missions, Operational Readiness Inspections (ORI), Operational Readiness Evaluations (ORE), Operational Plans (OPLANS), and local training missions. These specific missions were excluded because each has its own unique information and reporting requirements. Requirements for these missions are atypical due to the unique missions supported, and the absence of revenue generating cargo or passengers on board. Data generated in support of these missions are documented on MAC Form 68, Aerial Port Movement Log.

Research Objectives

This research is important to refining the concept of managing information within MAC aerial ports. The purpose of this research will be to evaluate current information requirements, to recommend alternative requirements, and to act as a source document for further research in evaluating

aerial port operating procedures. The objectives of this research are delineated below.

Research Objective 1. Determine what data is required by regulation to be captured and documented within the ATOCs.

Research Objective 2. Investigate the degree to which information is redundant in nature, that is, documented by ATOC, but also documented elsewhere within the aerial port.

Research Objective 3. Ascertain the specific objectives/goals of the managers within the ATOC and elicit those factors which are considered critical to the attainment of those goals. Once the critical factors are identified, the information needs which underlie those factors will be determined.

These objectives must be met in order to evaluate current information requirements within MAC aerial ports and to recommend alternatives to more efficiently and effectively conduct operations in support of the MAC mission.

II. Background

The Military Airlift Command operates a vast network of aerial ports in order to successfully accomplish its overall mission and, in turn, generates large amounts of data on each airlift mission supported. The aerial port's ATOC is responsible for compiling and documenting information on each MAC mission in order to provide a detailed history. Information is documented on a MAC Form 77, Aircraft Ground Handling Record, a form designed to capture 47 categories of information on each mission, most with multiple entries. A sample of this form is provided in Appendix A. The form, actually a folder, is a crucial document in maintaining a complete history for each MAC mission.

> Two weeks after an aircraft departs, you should be able to look at the 77 and tell the time of arrival, the number and categories of passengers, how much cargo was loaded and when, what time the meals were delivered, and when the outbound load message was sent [Walker, 1984:102].

Documentation procedures utilized within the ATOC are predominantly manual and extremely cumbersome and labor intensive. The trend in manpower authorizations necessitates a review of current operating procedures. Pending cuts in manpower authorizations in future years dictates an examination of current methods of operations in order to identify areas where procedures can be streamlined and accomplished more efficiently. During 1986, aerial port

manpower authorizations for fiscal year 1988 were cut three times. The reductions were for the total aerial port force, which includes Air National Guard, Air Force Reserve, and active duty forces. Air National Guard authorizations were cut 6.76%, Air Force Reserves were reduced 3.8%, while active duty authorization cuts totaled 12.56%. These cuts equate to the loss of two major active duty aerial port squadrons and six Air Reserve Force squadrons, losses which will severely affect MAC's ability to support its wartime/ peacetime requirements (Lundquist, 1987:I-16). The Guard and Reserve manpower authorization reductions have a significant impact since the current mix of the nearly 18,000 aerial port authorizations is 42% active duty and 58% for the Guard and Reserve (Office of Public Affairs, 1986:2-2-2-2).

Given the projected manpower reductions, one method of maintaining effectiveness and support capability is through an analysis of information requirements and the development and implementation of automated systems to support those requirements. In an effort to reduce manpower intensive work, an important Air Staff objective for 1987 is to promote the development of transportation information systems. Commenting on the move towards automation, Brigadier General Clarence Lindsey, Air Force Director of Transportation, stated "We in transportation are further behind than any other function" (Lindsey, 1987).

Before analyzing the information requirements of the ATOC, an overview of the aerial port is provided to familiarize the reader with its organization and to highlight the importance of the role the ATOC plays in successfully accomplishing the airlift mission.

The aerial port squadron is subdivided into many sections but are separated primarily by freight and passenger unique operations. They are linked by the ATOC which is considered to be the "nerve center" of aerial port operations. ATOC's basic purpose is to control the flow of information for every airlift mission between as many as five aerial port sections. This supports the goal of on-time departures, correct cargo and passenger loads, and prompt loading and offloading of the aircraft. The aerial port accomplishes its goal through the various workcenters, or sections, within the port, which focus on a particular aspect of the aerial port mission. Workcenters typically found in a MAC aerial port include Passenger Services, Fleet Services, Aircraft/Ramp Services, Import/Export Freight, Data Control Center (DCC), and the ATOC. Passenger Services is responsible for processing all passengers arriving, departing, or transiting the aerial port terminal. They are also tasked with conducting passenger boarding and deplaning operations and provide transfer between the aircraft and terminal facilities. Fleet Services provides for the delivery of passenger and aircrew meals. They also service aircraft

potable water, latrines, and galley equipment. Aircraft/Ramp Services' responsibilities include receiving, processing, warehousing, palletizing, loading, and offloading all cargo and mail identified for air movement on contract or military organic aircraft. This section also provides special handling for hazardous cargo, human remains, high value shipments, registered mail, and cargo which requires freezing or refrigeration. The Import/Export Freight section is, as its name implies, responsible for the examination, preparation, and documentation of cargo destined to, or received from international locations. The Data Control Center (DCC), commonly referred to as the Records Section, maintains the port's mechanized/computer capability and provides a manifesting capability for the movement of cargo and mail through the port. This section also physically maintains records generated by the other sections in supporting each airlift mission. Additionally, the DCC produces statistical and other reports on the movement of passengers, cargo, and mail for management use. The ATOC provides information control, surveillance and control of the ramp operations, capability forecasting, aircraft load planning, and operational supervision through the duty officer. The ATOC is the focal point where all information is received and processed, the major section responsible for gathering, processing, and disseminating all information pertaining to aerial port operations. Gathering and disseminating information is a key element in

effectively utilizing aerial port resources as well as maintaining an accurate record of events. The ATOC is responsible for documenting all information generated in supporting MAC aircraft and must ensure each workcenter provides and receives the necessary information to accomplish the assigned mission.

With the specific problem identified, a literature review was conducted to survey information requirements analyses which have already been conducted in MAC aerial ports. Unfortunately, there was very little information available pertaining to information requirements for air transportation functions in general, and virtually none for MAC aerial ports specifically. There does exist a wealth of information on the general topic of information systems (IS). This study will look at aerial ports from an IS perspective since it provides a powerful and useful framework for managers to view organizations (Knight and McDaniel, 1979:3). Due to this perspective, it is important to provide a general background on information management. Knight and McDaniel define information as meaningful bits of data which are transmitted in a purposeful manner to influence a future state of affairs (Knight and McDaniel, 1979:13). R. L. Martino, commenting on the new era of systems development, wrote:

> Management is now in a difficult position. Fifty years ago the cry was: "give me the facts." Today, too many facts are available. The cry is no longer "give me the facts," but "tell me what is going on."

> We are drowning in a sea of facts while dying of thirst for information ... (Martino, 1968:31).

He stated that information must be timely, accurate, and properly documented and managed to effectively allow the manager to make a decision. This remains the basic function of management (Martino, 1968:31-36). Dan Voich Jr., Homer Mottice, and William Shrode in their text view information within an organization as a fundamental resource. This resource is used to guide the operations of the organization in order to effectively achieve the goals which the organization has specified (Voich and others, 1975:Preface).

Information available to the organization does not always allow or facilitate advancement towards organizational goals. If information is useless, excessive, or redundant, it will be of little value and can even be detrimental. According to Voich, Mottice and Shrode, "useless information results from inadequate evaluation of information needs in operating activities and decisions" (Voich, et al, 1975:24). Useless information is more likely to be captured when the information selected is based on availability rather than for the real need for information. Excessive information relates to poor quality and is usually the result of ineffective analysis and evaluation of information needs and uses. Another inefficient use occurs when information is duplicated. Redundancy is costly to the organization in terms of acquisition, storage, processing, and distribution of the information (Voich, et al, 1975:24-25).

Gordon B. Davis and Margrethe H. Olson described several strategies which may be employed in determining information requirements. One of the strategies is simply to directly ask the users what their needs are. Various methods may be employed such as closed questions, open questions, brainstorming, group concensus, or guided brainstorming in an attempt to reach an ideal solution. This strategy assumes the users will be able to respond having compensated for biases due to concreteness, unused data, recentcy effects, and small sample size. Another strategy is to derive the information requirements from an existing information system within another organization which has a similar structure. This strategy has also been termed a data analysis approach. Data analysis is appropriately used in a situation where fairly standard information and operations are used in stable systems. A third strategy is to develop a prototype system. This strategy is more appropriately employed when there is no existing model on which to base requirements. Selection of a specific or combination of strategies depends on the characteristics of the organization in which the determination is conducted. A final strategy to determine information requirements is object system analysis. In this method, an analysis of the organization's activities is conducted and information requirements determined. Davis and Olson suggest that since information requirements stem from organizational

activities, obtaining information requirements from system analysis would yield the most logical and complete methodology. Two specific advantages of object system analysis are that it overcomes anchoring if the organization is in the midst of change, and that it can be utilized when the proposed organizational system does not readily fit existing patterns. Several methods have been developed from object system analysis for determination of information requirements, but the common feature is that each case begins with an analysis of the structure, objectives, and needs of the utilizing system. The information requirements are then derived from this basis (Davis and Olson, 1985:480-498).

One specific method developed at the Massachusetts Institute of Technology's (MIT) Sloan School of Management is termed the "critical success factors (CSF) method." MIT research team's experience has suggested that the CSF method provides a highly effective means of determining significant information requirements. The process involves interviewing executive level officers and focuses on the current information needs of each individual manager. During the interviews, the goals of the managers are elicited and the CSF which underlie those goals are determined. The CSF are those limited number of areas that, if satisfactorily attained, will ensure the successful performance of the organization. By clearly stating the CSF in an organization, the amount of information required is clearly defined

and the costly collection of unnecessary data is limited. Due to their critical nature to the organization, these factors should receive constant and careful attention from management. If performance in these key areas of activity is less than adequate, then the performance of the organization for the same period will also be less than desired. The goals of the organization represent the ends the organization attempts to achieve. The CSF's are the areas in which good performance is required in order to guarantee the stated goals will be attained (Rockart, 1979:81-93).

Joel E. Ross said a clear statement of an organization's information needs is absolutely fundamental, with all requirements being stated as clearly and precisely as possible. Managers need information for a variety of reasons; however most are concerned with the management process. As cited in Ross's book, Ralph J. Cordiner, then Chairman of the Board for General Electric commented before installation of the first business support computer:

> It is an immense problem to organize and communicate the information required to operate a large, decentralized organization ... What is required, instead, is a far more penetrating and orderly study of the business in its entirety to discover what specific information is needed at each particular position in view of the decisions to be made there (Ross, 1970:280-282).

Information is a vital resource within an organization and must be managed. In a related effort, Headquarters Military Traffic Management Command (MTMC) conducted an

Information Systems Planning (ISP) study to determine what data was required to support command functions and how current information systems were supporting MTMC's information needs. Commanders and key staff were interviewed to ascertain information needs and shortfalls they perceived as critical to accomplishing their jobs. The study concluded that although MTMC's basic information architecture was sound and information at the functional level was good, command levels were not provided all the information they required. The study team chief, Colonel Tommy Mason, then assigned to the Directorate of Plans and Strategic Mobility, HQ MTMC, adequately summed up the intention of any information requirements analysis, "The ultimate goal of the ISP effort is to get the right information to the right person at the right time" (Neblett, 1985:19).

In summary, the need for accurate, timely information is vital to the organization. In order to function at peak efficiency, organizational information requirements must be determined and managed as are other resources within the organization. This analysis of information requirements in MAC aerial ports polled the field experts, the users, for their views on the degree of documentation within the ATOC. Consistent with the methodology as outlined in Chapter III, these views were then compared with documentation requirements as specified by regulation in order to determine the degree of disparity between these sources.

III. Methodology

Introduction

The objective of this research is to analyze the information requirements of the ATOC within MAC aerial ports. The methodology is designed to draw upon the experience and expertise of key managers within the ATOC. The methodology includes data collection and data analysis. Data will be collected from several sources. A thorough review of pertinent regulations will be accomplished to determine currently specified requirements. Data will also be collected through interviews with key managers who utilize the information on a daily basis. These sources are expected to provide an investigation and background of information analysis in general and applications to the military specifically.

Investigative Research

Three research objectives have been formulated to guide this research effort.

Research Objective 1. Determine what data is required by regulation to be captured and documented within the ATOCs.

Research Objective 2. Investigate the degree to which information is redundant in nature, that is, documented in ATOC, but also documented elsewhere within the aerial port.

These research objectives will be accomplished through a thorough review of select chapters of MAC Regulation 76-1, Volume 1, Military Airlift. The following chapters will be reviewed in-depth, and current information documentation requirements determined:

Chapter 6. Transportation Documentation, Data Records and Reports.

Chapter 9. Air Terminal Operations Center

Chapter 10. Fleet Service

Chapter 11. Cargo/Mail

Chapter 14. Passengers

Chapter 15. Baggage

Chapter 9, Air Terminal Operations Center, will initially be reviewed and used as a basis to create a matrix depicting the current information documentation requirements within the aerial port. Requirements in other sections within the aerial port will then be determined from other chapters and included in the matrix. This is anticipated to identify possible documentation redundancies within the port. A sample matrix is included in Appendix B.

Research Objective 3. Ascertain the specific objectives/goals of key manages within the ATOC and elicit those factors which are considered critical to the attainment of those goals. Once the critical factors are identified, the information needs which underlie those factors will be determined.

Data to accomplish this research objective will be gathered through unstructured interviews with selected personnel from the six intertheater MAC aerial ports located at Travis AFB and Norton AFB, California; McChord AFB, Washington; McGuire AFB, New Jersey; Charleston AFB, South Carolina; and Dover AFB, Delaware. In unstructured interviews, general lead-off questions are posed to the interviewees. The lack of formal, structured follow-on questions allows the researcher to tailor additional questions based on initial replies. (Good, 1963:290-293). These ports were selected because they are representative of MAC aerial ports worldwide. Documentation procedures employed within aerial ports are standardized throughout MAC, and findings are expected to be applicable to all MAC aerial ports. Personnel to be interviewed are the Offices in Charge (OICs)/Chiefs of each ATOC. Those interviewed are listed in Appendix C. These personnel were selected due to their position and experience in the air transportation field. Preliminary interviews will be conducted in which each of the interviewees will be provided an overview of the research effort. Subjects to be discussed include personal introductions, an overview of the topic, a description of the methodology, and a statement of research objectives. The interviewees will be provided two questions to consider until a follow-on interview is conducted. Appointments will be scheduled for

follow-on interviews at times convenient to the interviewees. It is felt this will allow the interviewees to select a time period for the interview where distraction would be minimized. Lead-off questions which will be posed in the follow-on interviews, and initially provided in the preliminary interviews, are:

1. What do you consider as the ATOC's main objective/ goal in conducting daily operations?

2. What are the critical factors which enable the ATOC to attain its objective/goal?

After the critical factors to the successful operation of the ATOC have been determined, further questions will be then tailored to determine what information is required to support those critical factors identified.

IV. Results and Analysis

Introduction

This chapter reflects results obtained from the research effort. The data is presented to satisfy the three research objectives which were formulated to guide this study. The research objectives will be re-stated and results discussed.

Research Objectives

Research Objective 1. Determine what data is required by regulation to be captured and documented within the ATOCs.

This research objective was accomplished through a thorough review of pertinent regulations which prescribed documentation requirements within the ATOC. Results were tabulated and are included in an Information Matrix provided as Appendix D. Research identified 234 separate items of information which are required to be captured and documented within the ATOC. Due to the large number of items, four general categories of information were created and each information item assigned to a category. The four general categories were: Mission Header Information, Accountability Information, Aircraft Servicing Information, and Aircraft Payload Information. Mission Header Information was defined as that information which was operational in nature and

identified a particular mission. Mission number, routing, aircraft parking spot, arrival time, and departure time were typical of this category. Accountability Information were those items which were documented to provide a record of which individuals received or provided information to the ATOC. An example of this category of information is the documentation of the initials of the passenger service representative who provides the ATOC with the time the passenger antihijacking inspection was completed. The third category of information was Aircraft Servicing Information. This information consisted of the start and completion times of the various tasks performed by the aerial port on the aircraft. Examples of this category include passenger off-load start times and cargo onload complete times. The last category of information was Aircraft Payload Information. This category contained information such as number and status of passengers, as well as cargo information such as pieces, weight, and cube.

The 234 items of information were categorized as follows:

Category of Information	Number of Items
Mission Header Information	32
Accountability Information	127
Aircraft Servicing Information	20
Aircraft Payload Information	55

Accountability Information by far comprised the bulk of information captured and documented within ATOC. This category accounted for 54.27% of the items identified. Mission

Header Information accounted for 13.68%, Aircraft Servicing Information for 8.55%, with Aircraft Payload Information comprising the remaining 23.50%. It is significant to note that the latter three categories combined only total 47.73% of the total information documented within the ATOC. These categories encompass and document the operational aspects of the mission, but comprise less than half of all information documented.

Research Objective 2. Investigate the degree to which information is redundant in nature, that is, documented by ATOC, but also documented elsewhere within the aerial port.

Results of this research objective revealed an overall moderate degree of redundancy within the aerial port. Items of information documented elsewhere within the aerial port were included in an Information Matrix which was designed to illustrate redundancies. This Information Matrix is provided in Appendix D.

Once again, for ease of discussion, the items of information were categorized into four general areas as previously defined in the discussion of Research Objective 1.

Mission Header Information proved redundant in that 18 of the 32 items of information in this category were documented elsewhere within the aerial port. This duplication was deemed unavoidable given the nature of the information and the mission of the aerial port. For example, it is absolutely essential that all sections be fully aware of

such aircraft status as arrival time, parking spot, and scheduled departure time. Those items in this category which were not redundant, were items of information which were unique to one of ATOC's prime functions, load planning. Examples of these items include aircraft operating weight, operating moment/index, and ramp fuel weight.

The largest category, Accountability Information, showed the least redundancy. Only 7 of the 127 items of information in this category captured and documented by ATOC were documented elsewhere in the aerial port.

Aircraft Servicing Information was highly redundant within the aerial port. Eighty-five percent, 17 out of 20 items, of the information documented by ATOC was also documented by at least one other section. Finally, the remaining category, Aircraft Payload Information, also proved to be highly redundant. Over 96%, 53 out of 55 items, of the information documented by ATOC was also documented elsewhere in the port.

Throughout the study, a pattern was observed in regards to information redundancy. It became evident that the more critical the item of information, the more redundant in nature it became. Mission Header Information was duplicated in virtually every section within the port due to its criticality to successful mission accomplishment. Aircraft Service and Aircraft Payload Information, though important but evidently less critical, were duplicated to a lesser

extent. Finally, Accountability Information, apparently the least important data captured and documented, was virtually solely found in one section, the ATOC.

Research Objective 3. Ascertain the specific objectives/goals of the managers within the ATOC and elicit those factors which are considered critical to the attainment of those goals. Once the critical factors are identified, the needs which underlie those factors will be determined.

Key managers within selected MAC ATOCs were interviewed to determine the main objectives/goals they viewed in conducting daily operations. Those interviewed are identified in Appendix C. During the interviews, three main goals were expressed by all:

- Function as a centralized agency providing a clear, well coordinated effort to effectively maximize aircraft utilization in moving passengers, cargo, and mail.

- Maintain a high on-time departure reliability rate for traffic functions in support of the Wing mission.

- Provide leadership and maintain control over the subsections within the aerial port which are operationally responsible to the ATOC.

After the managers identified the goals of their organizations, those factors which they deemed critical to the attainment of those goals were elicited. In critical success factors methodology for determining information

requirements, concensus on critical success factors will identify the few critical areas which demand management attention in order to ensure successful mission accomplishment. Through isolation and identification of the critical success factors, the volume of information which must be collected is clearly defined and the costly collection of unnecessary data eliminated (Rockart, 1979:88). Those interviewed identified the following factors deemed critical to the successful attainment of their stated objectives/ goals:

- Adequate training of personnel
- Adequate manning in ATOC
- Cooperation amongst all sections
- Sufficient Materials Handling Equipment (MHE)
- Effective management in ATOC
- Effective leadership
- Effective communication between sections
- Pertinent and timely information
- Adherence to a sequence of events

Of these listed critical factors, the last three provided for a common basis within each ATOC. It was felt that successful performance in these areas would necessarily lead to a successful ATOC and aerial port operation. Effective communication, pertinent information provided in a timely manner, and the need to adhere to a sequence of events were determined to be the critical factors for a successful

operation. Effective communication included both in-house communication with other aerial port sections concerning mission progress, as well as communication with agencies outside the aerial port, such as command post, in-flight kitchen, base operations, U.S. Customs, and the Department of Agriculture. Timely, pertinent information was viewed as that which was essential to directly supporting the mission. All managers felt a great deal of information was handled whose only contribution was to "bog down" the operation. One individual felt that 85% of the time the same data was passed and the same coordination accomplished. Most stations reported developing and using a sequence of events checklist to aid in monitoring mission progress. Several managers commented that this was necessitated by the fact that the MAC Form 77, Aircraft Ground Handling Record, does not sequence mission events, it only provides a record of events. Through self-generated checklists, they have provided an in-house means to monitor mission progress. This additional requirement for a sequence of events suggests that despite the voluminous data documented by ATOC, a lack of information still exists.

Given the critical factors, items of information required to support them were determined. Many of the currently required items were deleted for the following two reasons. First, much of the information currently documented is redundant in nature and maintained elsewhere in

the aerial port. The major exception to this falls into the area of cargo/mail aircraft servicing operations. Unlike Passenger Service and Fleet Service operations, Aircraft/ Ramp Services does not document aircraft servicing times on a designated MAC form. However, this does not appear to be an insurmountable obstacle since the information can easily be captured through a sequence of events checklist in ATOC, or through implementation of a simple form in Aircraft/Ramp Services. The second reason for eliminating items of information was that they appear to serve no critical purpose in mission accomplishment. The primary group of data which fit this description is the previously identified category of Accountability Information. All the managers interviewed felt these items were documented solely as a means of defense to protect the ATOC in the event the mission failed to operate on time. Given these guidelines, the information requirements of the ATOC were determined and are included as Appendix F. This revised set of information requirements reduces the quantity of data documented by ATOC from 234 items to 47 items of information which will satisfy the critical success factors identified for successful mission accomplishment.

V. Recommendations and Conclusion

Introduction

The primary objective of this research was to conduct an analysis of information requirements within MAC aerial ports, specifically those of the ATOC. It determined current information requirements, ascertained the degree of redundancy inherent in current procedures, and attempted to propose a new set of information needs for the ATOC which would allow for successful mission accomplishment.

Recommendations

After a thorough review of current documentation procedures within the ATOC, it was determined that 234 separate items of information are captured and documented for each MAC airlift mission supported by the aerial port. These items of information fell into four general categories: Mission Header Information, Aircraft Servicing Information, Accountability Information, and Aircraft Data Information. More than half of all information fell into the category of Accountability Information. This category concentrated on documenting "who" received or provided each specific item of information rather than "what" each item of information was. This observation suggests the ATOC is in a quantity mode of information gathering rather than a quality mode. Accountability Information in general seemed to have

no specific application other than to serve as a means of protection or "finger pointing" in the event a mission was delayed. If this is the case, documenting Accountability Information is a costly waste to the organization in terms of time and manpower lost in gathering and documenting this data. If in the event this type of information was ever deemed crucial to reconstructing a sequence of events, it appears it would be readily available by simply reviewing duty rosters for the period in question. Additionally, this type of information serves no utility in the underlying purpose for investigating aircraft delays. The motive in investigating and reporting aircraft delays should be to find and correct weaknesses within the system, and to correct the problem in order to prevent its re-occurrence.

Information documented by the ATOC also proved to be redundant in nature. Very few of the items documented by ATOC were unique in that they did not exist elsewhere within the aerial port. For example, although other sections such as Fleet and Passenger Service are required to document aircraft servicing start and completion times, these items of information are also required to be transmitted to ATOC for further documentation. This redundancy detracts from the primary function of ATOC. The role of ATOC is to coordinate aerial port activities to ensure effective utilization of each mission and also to ensure timely servicing occurs. Management of procedures within other

sections towards this goal should be the responsibility of the respective section chiefs. Furthermore, this redundancy is compounded by the fact that the MAC Form 77 serves as a folder to file many of the source documents from which the information is derived.

Through interviews with key managers within the selected MAC aerial ports, goals/objectives and the critical success factors to attain those goals were elicited. Critical success factors were defined as those aspects of the operation which if satisfactorily achieved, would ensure the successful accomplishment of the assigned mission. By determining the critical success factors, it was possible to identify those items of information which were truly significant to the operation. Only by reducing the quantity of documentation and improving the quality of what is documented, can savings be realized by the ATOC, savings in time and manpower requirements.

Manpower savings to be realized are vitally important in light of future manpower cuts for aerial port forces. Projected losses will severely impact MAC's ability to support its wartime/peacetime requirements. This erosion of manpower authorizations requires current operating procedures be made as efficient as possible. The benefits to be derived as a result of re-defining information requirements can best be redirected towards the function of ATOC;

management, control, and efficient utilization of each mission. Through savings realized in reduced time expended of documenting needless or redundant information, ATOC personnel can increase time spent on management and control of eroding aerial port resources. Theoretically, this increased emphasis on management for each mission should result in an increased utilization of the mission in terms of passengers, cargo, and mail moved. Finally, a major side benefit of removing ATOC from the "watchdog" role of over-documentation, would be placing more responsibility on the managers in each individual section within the aerial port. Each section's leadership would have to be more responsive and responsible for its part in accomplishing the overall aerial port mission. Only through a more concentrated effort by individual section chiefs can ATOC be allowed to pursue its function of overall management of aerial port activities.

Current information documentation requirements must be refined in order to capture only that information which is vital to the successful accomplishment of the mission. HQ MAC/TRQ should develop a new MAC Form 77 and incorporate only those information items proposed in Appendix F. The design of the form should be altered so that it resembles and replaces the various in-house sequence of events checklists currently used by most MAC aerial ports.

Areas for Further Research

In regard to improving efficiency and effectiveness within MAC airlift operations, several areas are in need of investigative research. Research should be conducted to determine the information needs of higher headquarters in regard to aerial port generated information. Information and reports are routinely prepared and dispatched to the various levels of command; Air Division, Numbered Air Force, and HQ MAC. These requirements should be studied to determine the validity of the need, and to ascertain the extent of duplication from other base agencies providing the same information.

Another area to be studied is the use of automation to document aerial port support of the airlift mission. The civilian airline industry and MAC, in peacetime, are similar in that they both operate global, scheduled airlines. Civilian methods of documentation should be studied to determine their suitability and adaptability for MAC operations.

Still another area is information at the Wing level. The aerial port, command post, base operations, in-flight kitchen, maintenance, and other organizations all require common information to support each MAC mission. Research should be conducted to investigate the feasibility of a common system which links all organizations to a common data base for information requirements.

Finally, the manner in which information is documented during peacetime should be compared and evaluated against wartime procedures. There are currently two different procedures. In peacetime, missions are documented on the lengthy MAC form 77, Aircraft Ground Handling Record; during wartime, a simpler MAC Form 68, Aerial Port Movement Log is used. Both methods should be evaluated and a single procedure proposed to eliminate the transition which would be required in wartime and contingency operations.

Conclusion

In light of pending manpower reductions, the ATOC is being challenged to do more with less. Through a revision of current documentation procedures, the ATOC will be able to do less, and accomplish more.

These changes will result in improved management practices and more efficient operations.

Appendix A: Sample MAC Form 77, Aircraft Ground Handling Record

INBOUND

1. MISSION NUMBER/DATE	2. AIRCRAFT TYPE/NUMBER	3. OPERATOR	4. FROM	5. ETA/DATE	6. ATA/ATD/DATE	7. SPOT	8. GROUND TIME
AOPT855/Y6/035	C-141B/62182	Ø63	OKO	1458/4	1545/1513/4	B2	2+15

PASSENGER DATA

	A. SPACES REQUIRED	B. SPACES AVAILABLE	C. TOTAL	D. FOREIGN NATIONALS	E. CIVILIANS	F. DISTINGUISHED VISITORS	G. PATIENTS
9. OFFLOAD	34	6	40	2	3	** 1	
10. THRU	20	3	23	1	3		

CARGO/MAIL DATA

	A. TOTAL WEIGHT	B. CARGO CONFIGURATION / C. PALLET POSITIONS
11. OFFLOAD	18290	Optional Entry If Inbound MM-9 Received
12. THRU	14480	2 Plus Loose/PP6/2430/PP7/6540/Loose/PP6/Reg Mail/6 Pieces/24# See Remarks

D. EXPLOSIVES

E. EXPLOSIVES

13. MAC MCAP/TVMP DATA

A. REMARKS/CARGO/PASSENGER DESCRIPTION

FRS250403ZF601XXX/Fuel Control Assembly/1/30

B. AIRCRAFT TYPE/NUMBER: C141B/62042

C. LOCATION: CRK

14. SPECIAL HANDLING/HUMAN REMAINS

PP6/Loose/DNA/2/8# Reg Mail
PP6/Loose/CRK/6/24# Reg Mail
PP7/CRK/18/200/999
PP7/Loose/CRK/1/30/NOC MCAP
PP9/DNA/N/50/ Sig Service
1/25/ Corrosive

15. INBOUND COORDINATION

SECTION A.	ETA B.	C. REVISED ETA (Controller Only) (1)	(2)	ATA/ATD D.
CCC	CA	CA		CA
PASSENGER	RE	RE		RE
BAGGAGE	EC	EC		EC
CARGO/MAIL	PA	PA		PA
FLEET SERVICES	CE	CE		CE
AIRCRAFT/MAINT SERVICES	EC	EC		EC
SPECIAL HANDLING	DG	DG		DG
LOAD PLANNING	SD	SD		SD
AIRCOS				
SECURITY POLICE				
PUBLIC HEALTH				
CUSTOMS				
AGRICULTURE				
IMMIGRATION				
PASSED (ATOC)	BY (Initials)	LVB	LVB	NB
	TIME (Z hours)	1318	1438	1514

E. OFFLOAD TIME

	START	COMPLETE	(Remarks)
	1514	1610	CA
	1516	1635	RE
	1530	1545	EC
	1517	1537	CE
	1530	1550	EC
	1535	1553	DG

16. REMARKS

* Original ETA - 1400/4
** DNA - 1877
Item 12B continued - Loose/PP7/10 Pcs 999/200/ PP7/NOC MCAP/1 Pc/30

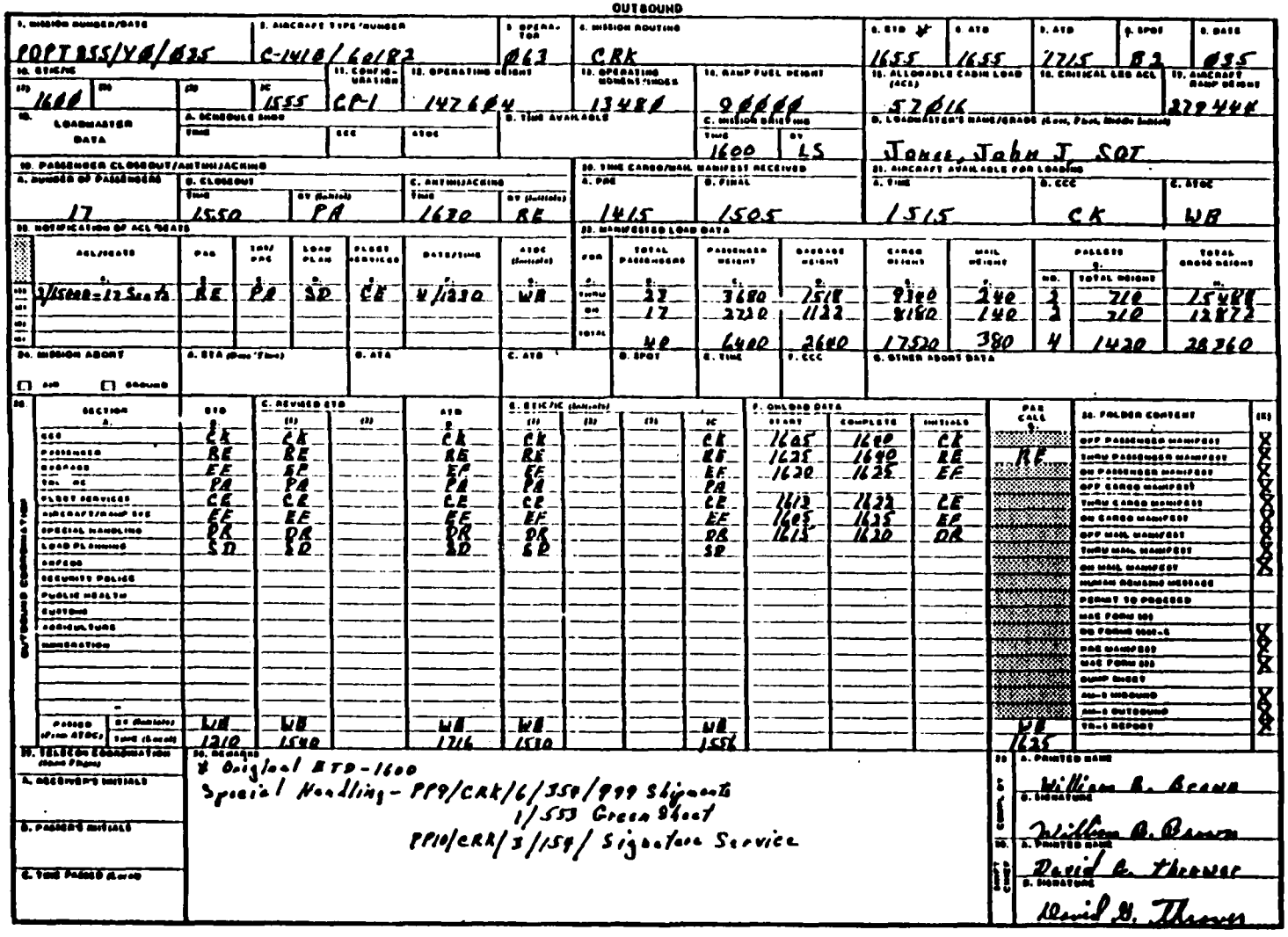
17. COMPLETED BY

A. PRINTED NAME: William C. Jones

B. SIGNATURE: William C. Jones

MAC FORM 77 PREVIOUS EDITION WILL BE USED

AIRCRAFT GROUND HANDLING RECORD



OUTBOUND

1. MISSION NUMBER/DATE: POPT855/YA/025	2. AIRCRAFT TYPE/NUMBER: C-141B / 60182	3. OPERATOR: 063	4. MISSION ROUTING: CRK	5. STD: 1655	6. ATD: 1655	7. ATD: 1715	8. SPOT: B2	9. DATE: 025		
10. STN/TIC: (a) 1660 (b) (c) (d) 1555	11. CONFIGURATION: CP-1	12. OPERATING WEIGHT: 147664	13. OPERATING MOMENT/1000: 13488	14. RAMP FUEL WEIGHT: 90000	15. ALLOWABLE CABIN LOAD (ACL): 52016	16. CRITICAL LEG ACL	17. AIRCRAFT RAMP WEIGHT: 279444			
18. LOADMASTER DATA	A. SCHEDULE END: Time	CCC	ATOC	B. TIME AVAILABLE	C. MISSION BRIEFING: Time 1600 By LS	D. LOADMASTER'S NAME/GRADE (Last, First, Middle Initial): Jones, John J. SGT				
19. PASSENGER CLOSEOUT/ANTIHIJACKING: A. NUMBER OF PASSENGERS: 17	B. CLOSEOUT: Time 1550 By (Initials) PA	C. ANTIHIJACKING: Time 1620 By (Initials) RE	20. TIME CARGO/MAIL MANIFEST RECEIVED: A. PAX: 1415 B. FINAL: 1505	21. AIRCRAFT AVAILABLE FOR LOADING: A. Time: 1515 B. CCC: CK C. ATOC: WB						

22. NOTIFICATION OF ACL SEATS

	ACL/GRADE	PAX	TOP/PAX	LOAD PLAN	FLIGHT SERVICES	DATE/TIME	ATOC (Initials)
1	3/15000=12 Seats	RE	PA	SD	CE	4/1230	WB
2							
3							
4							

23. MANIFESTED LOAD DATA

	FOR	TOTAL PASSENGERS	PASSENGER WEIGHT	BAGGAGE WEIGHT	CARGO WEIGHT	MAIL WEIGHT	PALLETS: NO.	PALLETS: TOTAL WEIGHT	TOTAL GROSS WEIGHT
1	THRU	23	3680	1518	9360	240	3	720	15498
2	ON	17	2720	1122	8160	140	3	720	12872
3	TOTAL	40	6400	2640	17520	380	4	1420	28360

24. MISSION ABORT: ☐ AIR ☐ GROUND | A. ETA (Zone Time) | B. ATA | C. ATD | D. SPOT | E. TIME | F. CCC | G. OTHER ABORT DATA

25. OUTBOUND COORDINATION

SECTION A.	STD	C. REVISED STD (1)	(2)	ATD	E. STN/TIC (1)	(2)	(3)	TIC	F. ONLOAD DATA: START	COMPLETE	INITIALS
ADC	CK	CK		CK	CK			CK	1605	1640	CK
PASSENGER	RE	RE		RE	RE			RE	1625	1640	RE
BAGGAGE	EF	EF		EF	EF			EF	1620	1625	EF
TOP. OC	PA	PA		PA	PA			PA			
FLIGHT SERVICES	CE	CE		CE	CE			CE	1613	1625	CE
AIRCRAFT/RAMP SVC	EE	EE		EE	EE			EE	1605	1625	EP
SPECIAL HANDLING	DR	DR		DR	DR			DR	1615	1620	DR
LOAD PLANNING	SD	SD		SD	SD			SD			
AMCOM											
SECURITY POLICE											
PUBLIC HEALTH											
CUSTOMS											
AGRICULTURE											
IMMIGRATION											
PASSED (From ATOC)	WB 1210	WB 1540		WB 1716	WB 1510			WB 1551			

PAX CALL	26. FOLDER CONTENT	(X)
	OFF PASSENGER MANIFEST	X
RE	THRU PASSENGER MANIFEST	X
	ON PASSENGER MANIFEST	X
	OFF CARGO MANIFEST	X
	THRU CARGO MANIFEST	X
	ON CARGO MANIFEST	X
	OFF MAIL MANIFEST	X
	THRU MAIL MANIFEST	X
	ON MAIL MANIFEST	X
	MISSION REMARKS MESSAGE	
	PERMIT TO PROCEED	
	MAC FORM 101	
	DD FORM 1801-6	X
	HDC MANIFEST	X
	MAC FORM 103	
	CARGO SHEET	
	AGE-1 INBOUND	X
	AGE-1 OUTBOUND	X
	TR-1 REPORT	X
WB 1625		

27. TELECON COORDINATION (Name/Phone/Agency)

A. RECEIVER'S INITIALS

B. PASSER'S INITIALS

C. TIME PASSED (Zulu)

28. REMARKS

* Original ETD - 1600
Special Handling - PPP/CRK/6/350/999 Shipments
1/553 Green Sheet
PP10/CRK/3/159/ Signature Service

29. LOADMASTER: A. PRINTED NAME: William R. Brown; B. SIGNATURE: William R. Brown

30. AIRCRAFT COMMANDER: A. PRINTED NAME: David R. Thrower; B. SIGNATURE: David R. Thrower

Appendix B: Sample Information Matrix

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Inbound mission number/ julian date	+	+	+	+	
Inbound aircraft type/ serial number	+	+	+	+	
Aircraft operator (Wing)	+	+	+	+	
Mission arriving from	+	+	+	+	
Estimated time of arrival/ julian date	+	+	+	+	
Actual time of arrival	+	+		+	
Actual time of block-in	+	+		+	
Aircraft parking spot	+	+	+	+	
Authorized ground time	+	+	+	+	
Space required passengers offloaded	+	+			

Appendix C: Personnel Interviewed

Captain Albert T. Bangi
Chief, Air Terminal Operations Center
438th Aerial Port Squadron
McGuire AFB NJ

Captain Fred Hoef
Chief, Air Terminal Operations Center
62nd Aerial Port Squadron
McChord AFB WA

Captain Larry D. Kinzer
Chief, Air Terminal Operations Center
60th Aerial Port Squadron
Travis AFB CA

Captain Emily A. Lieou
Chief, Air Terminal Operations Center
63rd Aerial Port Squadron
Norton AFB CA

Captain James Sviven
Chief, Air Terminal Operations Center
60th Aerial Port Squadron
Travis AFB CA

Major Kent P. Wood
OIC, Air Terminal Operations Center
436th Aerial Port Squadron
Dover AFB DE

Appendix D: Information Matrix

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Inbound mission number/ julian date	+	+	+	+	
Inbound aircraft type/ serial number	+	+	+	+	
Aircraft operator (Wing)	+	+	+	+	
Mission arriving from	+	+		+	
Estimated time of arrival/ julian date	+	+		+	
Actual time of arrival	+	+	+	+	
Actual time of block-in	+	+		+	
Aircraft parking spot	+	+		+	
Authorized ground time	+	+		+	
Space required passengers offloaded	+	+			
Space required passengers thru-load	+	+			
Space available passengers offloaded	+	+			
Space available passengers	+	+			
Total passengers offloaded	+	+			

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Total passengers thru-load	+	+			
Foreign national passengers offloaded	+	+			
Foreign national passengers thru-load	+	+			
Civilian passengers offloaded	+	+			
Civilian passengers thru-load	+	+			
Distinguished Visitors offloaded	+	+			
Distinguished Visitors thru-load	+	+			
Patients offloaded	+	+			
Patients thru-load	+	+			
Total weight of cargo/mail offloaded	+		+		+
Total weight of cargo/mail thru-load	+		+		+
Cargo configuration for offload	+		+		
Pallet positions of thru-load cargo	+		+		
Explosives offloaded	+		+		
Explosives thru-load	+		+		
MAC MICAP/VVIP, TCN, pieces, weight, nomenclature	+		+		

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Aircraft type, number and location for MAC MICAP/VVIP	+				
Special handling information	+				
Human remains information	+				
Initials of CCC representative passing ETA	+				
Initials of Passenger section representative receiving ETA	+				
Initials of Baggage section representative receiving ETA	+				
Initials of TRS/PRC section representative receiving ETA	+				
Initials of Fleet Services representative receiving ETA	+				
Initials of Aircraft/Ramp Services representative receiving ETA	+				
Initials of Special Handling section representative receiving ETA	+				
Initials of Load Planning representative receiving ETA	+				
Initials of Armed Forces Courier Service representative receiving ETA	+				

	Documented In			
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Items of Information					
Initials of Security Policy representative receiving ETA	+				
Initials of U.S. Public Health Officials receiving ETA	+				
Initials of U.S. Customs Officials receiving ETA	+				
Initials of Dept. of Agriculture representative receiving ETA	+				
Initials of U.S. Immigration Officials receiving ETA	+				
Initials of CCC representative passing ATA/ATB	+				
Initials of Passenger section representative receiving ATA/ATB	+				
Initials of Baggage section representative receiving ATA/ATB	+				
Initials of TRS/PRC section representative receiving ATA/ATB	+				
Initials of Fleet Services representative receiving ATA/ATB	+				
Initials of Aircraft/Ramp Services representative receiving ATA/ATB	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Special Handling section representative receiving ATA/ATB	+				
Initials of Load Planning representative receiving ATA/ATB	+				
Initials of Armed Forces Courier Service representative receiving ATA/ATB	+				
Initials of Security Policy representative receiving ATA/ATB	+				
Initials of U.S. Public Health Officials receiving ATA/ATB	+				
Initials of U.S. Customs Officials receiving ATA/ATB	+				
Initials of Dept. of Agriculture representative receiving ATA/ATB	+				
Initials of U.S. Immigration Officials receiving ATA/ATB	+				
Time CCC notified of earliest port activity on mission	+				
Time CCC notified of latest port activity on mission	+				
Time passenger offload started	+	+			
Time passenger offload completed	+	+			

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Time baggage offload started	+	+			
Time baggage offload complete	+	+			
Time fleet service offload started	+			+	
Time fleet service offload completed	+			+	
Time aircraft/ramp services offload started	+		+		
Time aircraft/ramp services offload completed	+		+		
Time special handling offload started	+		+		
Time special handling offload completed	+		+		
Time ETA passed to all sections	+				
Initials of ATOC representative passing ETA to sections	+				
Time ATA/ATB passed to sections	+				
Initials of ATOC representative passing ATA/ATB to sections	+				
Name and signature of ATOC representative completing the inbound MAC Form 77	+				

	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Items of Information					
Outbound mission routing	+	+		+	
Estimated time of departure	+	+		+	
Actual time of block-out	+	+		+	
Actual time of departure	+	+		+	
Aircraft estimated-time-in-commission	+				
Time aircraft in-commission	+				
Outbound aircraft configuration	+		+		
Aircraft operating weight	+				
Aircraft operating moments/ index	+				
Ramp fuel weight	+				
ACL	+				
Critical leg ACL	+				
Aircraft ramp weight	+				
Loadmaster scheduled show time	+				
Initials of CCC representative passing loadmasters scheduled show time	+				
Initials of ATOC representative passing loadmasters scheduled show time	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Time loadmaster given mission briefing	+				
Initials of ATOC representative giving loadmaster mission brief	+				
Loadmasters name/grade	+				
Number of outbound passengers	+	+			
Time of passenger closeout	+	+			
Initials of passenger section representative passing passenger closeout time	+				
Time of passenger antihijacking inspection	+	+			
Initials of passenger section representative passing time of antihijacking inspection	+				
Time cargo/mail pre-manifest received	+				+
Time cargo/mail final manifest received	+				+
Time aircraft available for loading	+				
Initials of CCC representative releasing aircraft for loading operations	+				

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of ATOC representative accepting aircraft release for loading	+				
Aircraft ACL/seat release	+	+			
Initials of passenger section representative receiving ACL/seat release notification	+				
Initials of TRS/PRC section representative receiving ACL/seat release notification	+				
Initials of loadplanning representative receiving ACL/seat release notification	+				
Initials of fleet service representative receiving ACL/seat release notification	+				
Date/time of ACL/seat release	+	+			
Initials of ATOC representative passing ACL/seat release to sections	+				
Outbound manifested total passengers	+	+			
Outbound manifested thru-load passenger weight	+	+			
Outbound manifested originating passenger weight	+	+			

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Outbound manifested thru-load passenger baggage weight	+	+			
Outbound manifested originating passenger baggage weight	+	+			
Outbound manifested thru-load cargo weight	+				+
Outbound manifested originating cargo weight	+				+
Outbound manifested thru-load passengers	+	+			
Outbound manifested originating passengers	+	+			
Outbound manifested thru-load mail weight	+				+
Outbound manifested originating mail weight	+				+
Outbound manifested total passenger weight	+	+			
Outbound manifested total baggage weight	+	+			
Outbound manifested total cargo weight	+				+
Outbound manifested total mail weight	+				+

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Number of outbound manifested thru-load 463L pallets	+				+
Number of outbound manifested originating 463L pallets	+				+
Total outbound manifested 463L pallets	+				+
Weight of outbound manifested thru-load 463L pallets	+				+
Weight of outbound manifested originating 463L pallets	+				+
Outbound manifested thru-load gross weight	+				+
Outbound manifested originating gross weight	+				+
Total outbound manifested gross weight	+				+
Mission abort - ETA	+	+		+	
Mission abort - ATA	+	+		+	
Mission abort - ATB	+	+		+	

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Aircraft parking spot for mission abort	+	+	+	+	
Time notified of mission abort	+				
Initials of CCC representative passing mission abort data	+				
Other abort data	+				
Type of mission abort	+				
Initials of CCC representative passing ETD	+				
Initials of Passenger section representative receiving ETD	+				
Initials of Baggage section representative receiving ETD	+				
Initials of TRS/PRC section representative receiving ETD	+				
Initials of Fleet Services representative receiving ETD	+				
Initials of Aircraft/Ramp Services representative receiving ETD	+				
Initials of Special Handling section representative receiving ETD	+				

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Load Planning representative receiving ETD	+				
Initials of Armed Forces Courier Service representative receiving ETD	+				
Initials of Security Policy representative receiving ETD	+				
Initials of U.S. Public Health Officials receiving ETD	+				
Initials of U.S. Customs Officials receiving ETD	+				
Initials of Dept. of Agriculture representative receiving ETD	+				
Initials of U.S. Immigration Officials receiving ETD	+				
Initials of CCC representative passing revised ETD	+				
Initials of Passenger section representative receiving revised ETD	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Fleet Services representative receiving revised ETD	+				
Initials of Aircraft/Ramp Services representative receiving revised ETD	+				
Initials of Special Handling section representative receiving revised ETD	+				
Initials of Load Planning representative receiving revised ETD	+				
Initials of Armed Forces Courier Service representative receiving revised ETD	+				
Initials of Security Policy representative receiving revised ETD	+				
Initials of U.S. Customs Officials receiving revised ETD	+				
Initials of Dept. of Agriculture representative receiving revised ETD	+				
Initials of U.S. Immigration Officials receiving revised ETD	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of CCC representative passing aircraft ETIC	+				
Initials of Passenger section representative receiving aircraft ETIC		+			
Initials of Baggage section representative receiving aircraft ETIC			+		
Initials of TRS/PRC section representative receiving aircraft ETIC				+	
Initials of Fleet Services representative receiving aircraft ETIC					+
Initials of Aircraft/Ramp Services representative receiving aircraft ETIC					+
Initials of Special Handling section representative receiving aircraft ETIC					+
Initials of Load Planning representative receiving aircraft ETIC					+
Initials of Armed Forces Courier Service representative receiving aircraft ETIC					+

Items of Information	Documented In			
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Security Policy representative receiving aircraft ETIC	+				
Initials of U.S. Public Health Officials receiving aircraft ETIC	+				
Initials of U.S. Customs Officials receiving aircraft ETIC	+				
Initials of Dept. of Agriculture representative receiving aircraft ETIC	+				
Initials of U.S. Immigration Officials receiving aircraft ETIC	+				
Initials of CCC representative passing aircraft in-commission status	+				
Initials of Passenger section representative receiving aircraft in-commission status	+				
Initials of Baggage section representative receiving aircraft in-commission status	+				
Initials of TRS/PRC section representative receiving aircraft in-commission status	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Fleet Service representative receiving aircraft in-commission status	+				
Initials of Aircraft/Ramp Services representative receiving aircraft in-commission status	+				
Initials of Special Handling section representative receiving aircraft in-commission status	+				
Initials of Load Planning representative receiving aircraft in-commission status	+				
Initials of Armed Forces Courier Service representative receiving aircraft in-commission status	+				
Initials of Security Policy representative receiving aircraft in-commission status	+				
Initials of U.S. Public Health Official receiving aircraft in-commission status	+				
Initials of U.S. Customs Official receiving aircraft in-commission status	+				

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of Dept. of Agriculture representative receiving in-commission status	+				
Initials of U.S. Immigration Officials receiving aircraft in-commission status	+				
Time CCC notified of earliest outbound port activity on mission	+				
Time CCC notified of latest outbound port activity on mission	+				
Initials of CCC representative accepting notification of port start/complete times	+				
Time passenger onload started	+	+			
Time passenger onload completed	+	+			
Time baggage onload started	+	+			
Time baggage onload completed	+	+			
Time fleet service onload started	+			+	
Time fleet service onload completed	+			+	
Time aircraft/ramp services onload started	+			+	

Items of Information	Documented In				
	ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Time aircraft/ramp services onload completed	+				
Time special handling onload started	+				
Time special handling onload completed	+				
Initials of Passenger section representative passing onload start/complete times	+				
Initials of Baggage section representative passing onload start/complete times	+				
Initials of Fleet Services representative passing onload start/complete times	+				
Initials of Aircraft/Ramp Services representative passing onload start/complete times	+				
Initials of Special Handling representative passing onload start/complete times	+				
Initials of passenger service representative receiving pax call	+				

Items of Information	Documented In: ATOC	PAX SVS	ACFT SVS	FLT SVS	DCC
Initials of ATOC representative passing pax call	+				
Time of pax call	+	+			
Initials of receiver for telecon short flight coordination	+				
Initials of passer for telecon short flight coordination	+				
Time of telecon short flight coordiantion	+				
Name and signature of ATOC representative completing outbound MAC Form 77	+				
Name and signature of ATOC shift chief reviewing outbound outbound MAC Form 77	+				
Cube of Cargo/Mail	+				+
Aircraft utilization (UTE) code	+				
Total passengers off next station	+	+			
Foreign National passengers off next station	+	+			
Civilian Passengers off next station	+	+			
Total DVs aboard outbound msn	+	+			

Appendix E: Abbreviations Used in Information Matrix

ACFT SVS	Aircraft Services
ACL	Allowable Cabin Load
ATA	Actual Time of Arrival
ATB	Actual Time of Block In/Out
ATOC	Air Terminal Operations Center
CCC	Consolidated Command Post
DCC	Document Control Center
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
ETIC	Estimated Time in Commission
FLT SVS	Fleet Services
MAC MICAP/VVIP	MAC Mission Capable/Very, Very Important Part
PAX	Passengers
PAX SVS	Passenger Services
TCN	Transportation Control Number
TRS/PRC	Terminal Reservation Section/ Passenger Reservation Center

Appendix F: Proposed Information Requirements

Inbound mission number/
julian date

Inbound aircraft type/
serial number

Aircraft operator (Wing)

Mission arriving from

Estimated time of arrival/
julian date

Actual time of arrival

Actual time of block-in

Aircraft parking spot

Authorized ground time

MAC MICAP/VVIP, TCN, pieces,
weight, nomenclature

Aircraft type, number and
location for MAC MICAP/VVIP

Special handling information

Human remains information

Time aircraft/ramp services
offload started

Time aircraft/ramp services
offload completed

Time special handling offload
started

Time special handling offload
completed

Name and signature of ATOC representative completing the MAC Form 77

Outbound mission routing

Estimated time of departure

Actual time of block-out

Actual time of departure

Aircraft estimated-time-in-commission

Time aircraft in-commission

Outbound aircraft configuration

Aircraft operating weight

Aircraft operating moments/index

Ramp fuel weight

ACL

Critical leg ACL

Aircraft ramp weight

Loadmaster scheduled show time

Time aircraft available for loading

Aircraft ACL/seat release

Mission abort - ETA

Mission abort - ATA

Mission abort - ATB

Aircraft parking spot for mission abort

Other abort data

Type of mission abort

Time aircraft/ramp services
onload started

Time aircraft/ramp services
onload completed

Time special handling onload
started

Time special handling onload
completed

Time of telecon short flight coordination

Name and signature of ATOC
representative cmpleting
outbound MAC Form 77

Name and signature of ATOC
shift chief reviewing outbound
outbound MAC Form 77

Cube of Cargo/Mail

Aircraft utilization (UTE) code

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Captain Victor R. Stack was born on 13 January 1953 in Chicago, Illinois. He graduated from high school in 1971 and attended DePaul University in Chicago. He enlisted in the USAF and later received the degree of Bachelor of Arts in Psychology through St. Leo College, St. Leo Florida. Upon graduation Captain Stack entered Officer Training School at Lackland AFB, Texas, and received his commission. Following completion of the basic Transportation Officer Course, he was assigned to the 3rd Mobile Aerial Port Squadron at Pope AFB, North Carolina until March 1983. He was then assigned to the 625 Aerial Port Squadron, Torrejon AB, Spain. He initially served in the Air Terminal Operations Center before assuming the duties of Squadron Operations Officer. Captain Stack served in this capacity until entering the School of Systems and Logistics, Air Force Institute of Technology in May 1986.

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The Military Airlift Command (MAC) as the Single Manager Operating Agency for the Department of Defense (DOD) Airlift Service provides air transportation for the DOD and other governmental agencies. MAC maintains a vast network of aerial ports providing a vital link in accomplishing MAC's mission during wartime, periods of crisis, and peacetime. This research focussed on operating procedures and existing regulations in order to assess the information requirements neccessary to conduct daily operations. Documentation review and telephone interviews were used to facilitate this research. A Critical Success Factors (CSF) methodology was employed and resulted in a proposed new set of information needs for the Air Terminal Operations Center (ATOC). The proposed set greatly reduces the degree to which the ATOC currently documents each airlift mission, without degrading effectiveness. Savings realized by reducing the time expended in documenting needless or redundant information are significant given pending aerial port manpower authorization reductions. ATOC personnel can increase time spent on management and control of aerial port resources.

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